REMARKS

This Amendment is submitted in response to the Office Action dated September 8, 2004, having a shortened statutory period set to expire December 8, 2004. Claim 21 is currently amended. Applicants have previously cancelled Claims 1, 6-9 and 14-17. Claims 2-5, 10-13 and 18-21 are currently pending.

Specification

At paragraph 8 of the present office Action, the Examiner notes the presence of multiple copies of the specification present in the image file wrapper of the application. In order to unambiguously clarify the exact contents of the current specification, the Examiner has required Applicants to submit a clean copy of the current specification, and a marked up copy of the specification relative to the originally filed specification, both of which are enclosed.

Claim Rejection under 35 U.S.C. § 101 & § 112

At paragraph 10 of the present office Action, the Examiner rejects Claim 21 under 35 U.S.C. § 101 as reciting non-statutory subject matter. Applicants have amended Claim 21 to recite a 'computer readable medium' and 'instructions in the computer readable medium' to correct this deficiency. Applicants thank the Examiner for his attention to detail.

The Examiner has also rejected, at paragraph 12, Claim 21 under 35 U.S.C. § 112 for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants have also deleted the reference to a 'product product' in Claim 21 to correct this deficiency. Applicants thank the Examiner for his attention to detail.

Claim Rejection under 35 U.S.C. § 102(b) for Anticipation by *Marais*

At paragraph 15 of the present Office Action, Claims 2-5, 10-13 and 18-21 are rejected under 35 U.S.C. § 102(b) as being anticipated by "Supporting Cooperative and Personal Surfing with a Desktop Assistant" by Marais *et al.* (*Marais*).   Applicants respectfully submit that *Marais* does not anticipate Applicants' amended Claims 2-5, 10-13 and 18-21, because *Marais* does not explicitly or inherently disclose each feature recited by Applicants' amended exemplary Claim 3 or those features recited by amended exemplary dependent Claims 2 and 4-5. Applicants respectfully traverse the Examiner's rejections of Claims 2-5, 10-13 and 18-21.

Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. *R.C.A. Corp.* v. *Applied Data Systems, Inc.*, 730 F.2d 1440, 221 U.S.P.Q. 385 (Fed. Cir. 1984); *W.L. Gore and Associates, Inc.* v. *Garlock, Inc.* 721 F.2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983). As articulated above, the legal standard for a § 102 rejection requires that the reference teach each element recited in the claims. In the present Office Action, the Examiner fails to allege that *Marais* discloses any of the specifically claimed elements of Applicant's claimed invention. The Examiner states:

> Marais disclosed creation of "bookmark" web page entr(ies) both automatic keyword generation based on actual HTML content and various heuristic processing, optionally in response to user input of topical interest. See, inter alia, Section 3.1. Also see Figure 4, for usage of HTML 3.2 which inherently incorporated "metadata fields" for parsing/extraction and subsequent document classification/categorization. Marais also disclosed local client searching of pages (inter alia, Section 3.2), "auto-bookmarking" Section 4.1) client user keyword definition(s) (inter alia, Section 4.2), and automated clustering (inter alia, Section 6).   Thus, it is clear that Marais clearly disclosed the invention as broadly claimed."

Applicant respectfully submits that the Examiner has not alleged the presence in *Marais* of several elements of Appicant's invention as specifically claimed in exemplary amended Claim 3. Generally speaking, Applicants respectfully submit that the cited passages of *Marais* are directed to a mechanism for automatic history recording and indexing, a mechanism supported by the cited passage's discussion that a user "might forget to bookmark an important page"

(*Marais*, page 132, column 2, paragraph 1). Applicant's invention, by way of contrast, is directed toward a method and apparatus for improved bookmark and history entry, creation, and access, which is explicitly claimed as being responsive to a user designation. Applicant's Claim 3 explicitly claims user intervention with the language "in response to a user designating a page as a page of interest by requesting said entry". Applicant's method for improving bookmarks, a step of which is performed "in response to a user designating a page as a page of interest by requesting said entry" is patentably distinct from a solution that is designed "to continuously index the full text of all viewed pages" (*Marais*, page 132, column 2, paragraph 2).

More specifically, Applicants' exemplary amended Claim 3 recites "a browser client creating an entry representing a page in a hotlist of pages in response to a user designating a page as a page of interest by requesting said creation of said entry in said hotlist of pages". The cited passages of *Marais* do not at any point refer to "a browser client creating an entry representing a page in a hotlist of pages in response to a user designating a page as a page of interest by requesting said creation of said entry in said hotlist of pages" or performing any other action "in response to a user designating a page as a page of interest by requesting said creation of said entry in said hotlist of pages". Applicants respectfully submit that independent exemplary amended Claim 3 is not anticipated by *Marais* because *Marais* does not disclose "a browser client creating an entry representing a page in a hotlist of pages in response to a user designating a page as a page of interest by requesting said creation of said entry in said hotlist of pages".

Further, Applicants' exemplary amended Claim 3 recites "the browser client searching the page for keywords, wherein the step of searching the page for keywords further comprises the browser client automatically generating a group of keywords based on the content of the page responsive to discovering an absence of keywords within metadata for the page". The cited passages of *Marais* do not at any point refer to "the browser client searching the page for keywords, wherein the step of searching the page for keywords further comprises the browser client automatically generating a group of keywords based on the content of the page responsive to discovering an absence of keywords within metadata for the page" or performing any other action "responsive to discovering an absence of keywords within metadata for the page".

Applicants respectfully submit that independent exemplary amended Claim 3 is not anticipated by *Marais* because *Marais* does not disclose "the browser client searching the page for keywords, wherein the step of searching the page for keywords further comprises the browser client automatically generating a group of keywords based on the content of the page responsive to discovering an absence of keywords within metadata for the page".

Applicants further respectfully submit that exemplary amended Claims 2 and 4-5, which depend from and further patentably distinguish Claim 3, are similarly not anticipated by *Marais*. Finally, Applicants respectfully that similar Claims 10-13 and 18-21 are not anticipated by *Marais*.

Claim Rejection under 35 U.S.C. § 102(b) for Anticipation by *Douglass*

At paragraph 15 of the present Office Action, Claims 2-5, 10-13 and 18-21 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Publication #2002/0040311 by Douglass *et al.* (*Douglass*). Applicants respectfully submit that *Douglass* does not anticipate Applicants' amended Claims 2-5, 10-13 and 18-21 because *Douglass* is not eligible for use as prior art against Applicant's present invention.

Specifically, *Douglass* states on its face that it is filed on October 4, 2001, while Applicants' present application was filed on October 26, 2000. While Applicant understands that *Douglass* is listed as the Non-provisional of provisional application No. 60/237,510, filed on October 4, 2000, Applicant respectfully submits that the Examiner has not provided Applicant with a copy of said provisional application, and that Applicant is unable to ascertain whether the content of said provisional application supports any disclosure that Examiner alleges to be present in *Douglass*.

Therefore, Applicants respectfully submit that independent exemplary amended Claim 3 is not anticipated by *Douglass* because *Douglass* is ineligible as prior art. Applicants further respectfully submit that exemplary amended Claims 2 and 4-5, which depend from and further

patentably distinguish Claim 3, are similarly not anticipated by *Douglass*. Finally, Applicants respectfully that similar Claims 10-13 and 18-21 are not anticipated by *Douglass*.

Additionally, the Examiner fails to allege that *Douglass* discloses any of the specifically claimed elements of Applicant's claimed invention. The Examiner states:

"Douglass disclosed the automatic extraction of keywords/metadata from visited/bookmarked webpages, and user modification of these descriptive keyword(s) See, inter alia, Figure 1, and page 2, Paragraphs [0020] through [0028]. Clearly, keyword fields were defined to designate particular keywords for the page(s) in the "Keyword Library" and storage of relevancy ratings. See, inter alia, step (26) and (40). The automatic generation of keywords for document(s) was disclosed as performed, inter alia, in step 30."

Applicant respectfully submits that the Examiner has not alleged the presence in *Douglass* of several elements of Appicant's invention as specifically claimed in exemplary Claim 3. Generally speaking, the Examiner has characterized *Douglass* as disclosing "the automatic extraction of keywords/metadata from visited/bookmarked webpages". Applicant's invention, by way of contrast, is directed toward a method and apparatus for improved bookmark and history entry, creation, and access, which is explicitly claimed as being responsive to a user designation. Applicant's Claim 3 explicitly claims user intervention with the language "in response to a user designating a page as a page of interest by requesting said entry". Applicant's method for improving bookmarks, a step of which is performed "in response to a user designating a page as a page of interest by requesting said entry" is patentably distinct from a solution that is designed "the automatic extraction of keywords/metadata from visited/bookmarked webpages".

More specifically, Applicants' exemplary amended Claim 3 recites "a browser client creating an entry representing a page in a hotlist of pages in response to a user designating a page as a page of interest by requesting said creation of said entry in said hotlist of pages". The cited passages of *Douglass* do not at any point refer to "a browser client creating an entry representing a page in a hotlist of pages in response to a user designating a page as a page of interest by requesting said creation of said entry in said hotlist of pages" or performing any other action "in response to a user designating a page as a page of interest by requesting said creation of said

entry in said hotlist of pages". The cited pages of *Douglass* refer to continuously rating all visited documents for relevance. Applicants respectfully submit that independent exemplary amended Claim 3 is not anticipated by *Douglass* because *Douglass* does not disclose "a browser client creating an entry representing a page in a hotlist of pages in response to a user designating a page as a page of interest by requesting said creation of said entry in said hotlist of pages".

Further, Applicants' exemplary amended Claim 3 recites "the browser client searching the page for keywords, wherein the step of searching the page for keywords further comprises the browser client automatically generating a group of keywords based on the content of the page responsive to discovering an absence of keywords within metadata for the page". The cited passages of *Douglass* do not at any point refer to "the browser client searching the page for keywords, wherein the step of searching the page for keywords further comprises the browser client automatically generating a group of keywords based on the content of the page responsive to discovering an absence of keywords within metadata for the page" or performing any other action "responsive to discovering an absence of keywords within metadata for the page". More specifically, the cited text of Douglass refers to keywords being generated by a user at the beginning of a session, rather than being generated from by a client from content of the page (*Douglass*, page 2, paragraph 20).

Applicants respectfully submit that independent exemplary amended Claim 3 is not anticipated by *Douglass* because *Douglass* does not disclose "the browser client searching the page for keywords, wherein the step of searching the page for keywords further comprises the browser client automatically generating a group of keywords based on the content of the page responsive to discovering an absence of keywords within metadata for the page".

Applicants further respectfully submit that exemplary amended Claims 2 and 4-5, which depend from and further patentably distinguish Claim 3, are similarly not anticipated by *Douglass*. Finally, Applicants respectfully that similar Claims 10-13 and 18-21 are not anticipated by *Douglass*.

Claim Rejections under 35 U.S.C. § 103

At paragraph 24 of the present Office Action, Claims 2-5, 10-13 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,100,890 to Bates *et al.* (*Bates*) in view of what would have been obvious to one of ordinary skill in the art at the time of the invention.   Applicants respectfully traverse the Examiner's rejection because *Bates* is disqualified as a reference in a rejection under 35 U.S.C. § 103(a) by 35 U.S.C. § 103(c).

As set forth in 35 U.S.C. § 103(c), a patent or other publication is disqualified as a reference in a rejection under 35 U.S.C. § 103(a) if (1) the application was filed after November 29, 1999, (2) the reference is prior art only under 35 U.S.C. § 102(e), (3) the reference was invented by a different inventive entity, and (4) the reference is owned by the same entity as the rejected application.

With respect to the present Office Action, the *Bates* reference is not prior art under 35 U.S.C. 102(a). For a patent to qualify as prior art under 35 U.S.C. 102(a), a patent must be granted before the date of invention by Applicant. Applicants have submitted herewith an affidavit of Stephen A. Mason, a person who worked in preparation of the present application and was aware of the present invention at a date prior to the date of the *Bates* reference, along with a photocopy of an invention disclosure supporting said affidavit. Similarly, the *Bates* reference is not prior art under 35 U.S.C. 102(b). For a patent to qualify as prior art under 35 U.S.C. 102(b), a patent must be published a year before the date of application by Applicant. The present application was filed on 10/26/00, less than a year after the grant of patent on the *Bates* reference on 8/8/00. Therefore, *Bates* can qualify as prior art only under 35 U.S.C. § 102(e), and is not prior art under any other portion of 35 U.S.C. 102. To qualify as prior art under 35 U.S.C. § 102(e), a reference must be "described in…a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent".

The face of the *Bates* reference indicates that *Bates* is assigned to International Business Machines, the assignee of Applicants' current application under the assignment recorded at Reel 011225 and Frame 0869 on October 26, 2000. Further, *Bates* was invented by Bates and Ryan, an inventive entity distinct from the current Applicants (Beadle, Forlenza, and Sang). The

present application was filed on October 26, 2000, after the critical deadline of November 29, 1999. An affidavit containing the relevant facts under 37 C.F.R. §1.132 is included herewith in support of this response.

Applicants respectfully submit that Bates is rendered ineligible as a reference under 35 U.S.C. § 103 (c).

CONCLUSION

Applicants respectfully that all pending Claims are in condition for allowance, and Applicants respectfully request a Notice of Allowance for all pending claims.

No extension of time for this response is believed to be necessary. However, in the event an extension of time is required, that extension of time is hereby requested. Please charge any fee associated with an extension of time as well as any other fee necessary to further the prosecution of this application to **IBM CORPORATION DEPOSIT ACCOUNT No. 09-0447.**

Respectfully submitted,

Brian F. Russell
Registration No. 40,796
DILLON & YUDELL LLP
8911 North Capital of Texas Highway
Suite 2110
Austin, Texas 78759
(512) 343-6116

ATTORNEY FOR APPLICANTS

MARKED-UP COPY OF SUBSTITUTE SPECIFICATION (27 PAGES)

SUBSTITUTE SPECIFICATION

METHOD AND APPARATUS FOR IMPROVED BOOKMARK AND HISTORIES ENTRY CREATION AND ACCESS

BACKGROUND OF THE INVENTION

1.   **Technical Field:**

[0001] The present invention relates generally to organizing and accessing entries in a web page list and in particular to organizing a web page list to easily locate and retrieve relevant pages based on content. Still more particularly, the present invention relates to employing keywords and search terms in connection with a web page list to facilitate location and retrieval of relevant pages based on content.

2.   **Description of the Related Art:**

[0002] Almost all hypertext systems, including web browsers, provide a facility listing particular sites on the Internet for quick, easy access. Such a facility is normally referred to as a bookmark or "favorites" list, a history list, a hotlist, or "channels." These lists are typically displayed within a browser or other communications management utility (such as Windows™ Explorer) as a textual list of titles which may be selected in "point-and-click" fashion by the user. Often a user may add new entries to the list, alter the title or Uniform Resource Locator (URL) associated with a list entry, reorder entries, or delete one or more entries from the list. Some lists simply identify, on a rolling basis, a specified number of the last sites which a user visited using the browser.

AUS920000120US1   -1-

[0003] Several organizational problems attend these lists as they are currently implemented and employed. First, by nature these lists offer minimal insight into the content represented by an entry. The problem is analogous to locating a desired book or volume within a library. To locate a particular volume in a library with only ten books is usually easy. Even if the cover or table of contents of each of the ten volumes must be inspected to determine the content, this takes only a few minutes, at most. Locating the same volume within a library of 300,000 books, however, can be much more difficult and time consuming.

[0004] Furthermore, lists of this type continually expand as the user's web browsing continues, quickly growing past a generally manageable size. Users often accumulate hundreds of bookmarks in their bookmark lists, while history lists can expand to thousands of entries depending on browser settings. Although the linear nature of such lists demands organization to efficiently locate relevant entries, no automated mechanism for organizing these lists exists. Users typically do not spend the time required to organize their bookmark lists, and history list organization is constrained by whichever sorting mechanisms are supported by the browser (e.g., by URL, name, first visited, last visited, etc.). Even if organized, however, the organization may not provide sufficient information to enable selection of the appropriate site based upon content.

[0005] The problem is further complicated when a group of users shares a common set of bookmarks, such as when one user sends a bookmark file to another or when multiple users employ the same machine with a common or standard bookmark and history configuration. In either case, the user wishing to locate particular content from the list(s) may find the proper

bookmark or history entry only by manually searching recursively through folders of shared bookmarks, and in some cases actually retrieving the associated web pages to ascertain the content.

[0006] The problem, as illustrated by the library analogy above, revolves around scale, but is also compounded by the fact that categorized bookmark or history entries may fit into more than one designated category. While "folders" within such lists are designed to provide a useful classification system for the entries, the categorization for a bookmark or history entry which best identifies the linked content may change over time and may not be intuitive across all users.

[0007] It would be desirable, therefore, to provide a mechanism allowing the user to efficiently and automatically locate hotlist entries related to a topic of interest, without requiring substantial organizational overhead. It would further be advantageous for the mechanism to automatically index a site to facilitate location of desired content when each bookmark or history entry is created.

SUMMARY OF THE INVENTION

[0008] It is therefore one object of the present invention to improve organization of and access to entries in a web page list.

[0009] It is another object of the present invention to organize a web page list for easy location and retrieval of relevant pages based on content.

[0010] It is yet another object of the present invention to employ keywords and search terms in connection with a web page list to facilitate location and retrieval of relevant pages based on content.

[0011] The foregoing objects are achieved as is now described. Each entry within a "hotlist" (bookmark, favorites, or history list) includes a set of keywords topically identifying the content of the linked page. The keywords included within META tags for HTML files of an accessed Web page may be automatically detected and extracted by the browser for the hotlist when the browser creates the entry for that page within the hotlist. Alternatively, the browser may tabulate terms from the page content itself to select keywords identifying the content. In either case, the user may selectively edit the keywords for a hotlist entry to add, modify, or delete keywords. The keywords are stored with the hotlist data and may be searched for a particular topic. Hotlist entries matching the search criteria are displayed to the user and, upon selection of a particular matching entry by the user, employed to automatically generate a request for the corresponding

AUS920000120US1   -4-

page.

[0012] The above as well as additional objectives, features, and advantages of the present invention will become apparent in the following detailed written description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The novel features believed characteristic of the invention are set forth in the appended claims. The invention itself however, as well as a preferred mode of use, further objects and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

[0014] **Figure 1** depicts a data processing system network in which a preferred embodiment of the present invention is implemented;

[0015] **Figures 2A-2B** are data structures for bookmarks and history lists in accordance with a preferred embodiment of the present invention;

[0016] **Figure 3** depicts a mock-up of a user-interface for viewing and/or editing keywords associated with a hotlist entry in accordance with a preferred embodiment of the present invention;

[0017] **Figures 4A-4C** are high-level flowcharts for processes of creating and maintaining hotlist entry keyword fields in accordance with a preferred embodiment of the present invention;

[0018] **Figure 5** depicts a mock-up of a user interface dialog enabling search of hotlist entries utilizing content-identifying keywords in accordance with a preferred embodiment of the

AUS920000120US1   -6-

present invention; and

[0019] **Figure 6** is a high-level flowchart for a process of searching, retrieving, and displaying hotlist entries based on keyword data within the hotlist entries in accordance with the preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0020] With reference now to the figures, and in particular with reference to **Figure 1**, a data processing system network in which a preferred embodiment of the present invention is implemented is depicted. The data processing system network **102** includes a number of servers **104a-104n** (where n is any positive integer) storing files including World Wide Web content. Servers **104a-104n** are capable of selectively providing pages, typically HyperText Markup Language (HTML) documents and accompanying graphics, sound, or video files, in response to HyperText Transfer Protocol (HTTP) requests from clients **106a-106n** coupled to servers **104a-104n** via Internet **108**.

[0021] As known in the art, content within servers **104a-104n** is retrieved utilizing Uniform Resource Locators (URLs) providing an address mapping to the content. Each URL typically includes a resource identifier (e.g., "www"), a second level domain name (e.g., "ibm"), and a top level domain name (e.g., ".com"), and may optionally include a directory path and/or filename for the content being requested.

[0022] As known in the art and illustrated for client **106n**, each individual client **106a-106n** typically includes an operating system **110** facilitating the interaction between the system hardware and various software programs and one or more user applications **112**, which may include all manner of network and non-network dependent applications ranging from spreadsheets to Internet telephony. In the present invention, one of the programs executing within the client **106n** is a web browser **114** or similar data access and retrieval application.

[0023] The client **106n** and browser **114** in the exemplary embodiment are intended for shared use by multiple users. Among other constituent parts, the web browser **114** will typically have a file and/or directory **116** for user data and preferences for a particular user, as well as a data structure **118** containing the user's bookmarks and a second data structure **120** containing the user's browsing history. In the present invention, both the bookmarks list **118** and the history list **120** contain keyword data **122** and **124**, respectively, associated with URLs within the lists as described in further detail below. The term "hotlist" is employed herein to refer to any bookmarks, histories, or favorites lists, channels, or any other data structure containing a list of URLs pointing to selected content.

[0024] Referring now to **Figures 2A and 2B**, data structures for bookmarks and history lists in accordance with a preferred embodiment of the present invention are illustrated. **Figure 2A** illustrates a bookmarks list **118**, a listing of URLs which a user has selected for ready reference. Each entry within bookmarks list **118** includes a name **202** identifying generally the site which is linked (e.g., "IBM Home Page"), an URL **204** providing the link to the referenced content, an add date **206** identifying the date on which the corresponding bookmark was added to bookmarks list **118**, and a last visited date **208** identifying the date on which the referenced content was last accessed by the user. Each entry also include a description **210** and keywords **122**.

[0025] Description **210** is typically an intelligible statement regarding the content referenced or the nature of the enterprise which published the reference content. Description **210** is usually captured from the referenced content when a bookmark to the referenced content is created. For

AUS920000120US1   -9-

example, the IBM Home Page includes a "description" meta tag containing an intelligible statement regarding the nature of the page and the enterprise publishing the page:

<meta name="DESCRIPTION" content="The IBM corporate home page, entry point to information about IBM products and services"/>

This description may be captured when the link is added to bookmarks list **118,** and stored within description field **210** of the corresponding entry. Alternatively, the content of description field **210** may be manually entered by the user. Description **210** may be employed, for example, to provide a "flyover" pop-up description for the bookmark entry displayed whenever a pointer-driven cursor overlies a display region in which the bookmark entry is displayed.

[0026] Keywords **122** is a set of terms provided to identify the content of the corresponding bookmarks entry, generally in an arbitrary and unintelligible list of terms. As with description **210,** keywords **122** may be captured from the meta tags of content referenced by a bookmark entry at the time the bookmark entry is created:

<meta name="KEYWORDS" value="IBM Microelectronics analog mixed signal asics ceramic probe cards communications networking ics digital video mpeg electronic card assembly test foundry services palette dacs ieee 1394 phy transceivers infrared technology memory mwave dsp packaging interconnect embedded controllers powerpc serial storage architecture x86 microprocessors" content="">

Such keywords are employed by Internet search engines to index sites, but are not captured within a field for a hotlist entry as proposed by the present invention.

[0027] Alternatively, keywords **122** may be subject to manual entry or editing by the user. Unscrupulous enterprises often misrepresent content in order to attract more "hits." For example, a site may include a reference to "sex" or the name of a competing enterprise within the keyword meta tag of the content published, in an effort to draw hits from keyword searches unrelated to or not intended to identify the corresponding site. For this reason, user editing capability over keywords **122** is preferred.

[0028] **Figure 2B** illustrates a history list **120**, a rolling list of the last n sites (where n is any positive integer) visited by the user or of sites visited by the user within the defined period (e.g., the last 30 days), which is automatically compiled by the browser. History list **120** also includes a name **212** and a corresponding URL **214** for each entry. In addition, each entry may include a first visited date **216** identifying the first time the user visited the corresponding site, a last visited date **218** identifying the most recent visitation by the user, and an expiration date **220** identifying a date on which the corresponding entry will be deleted, where aging is employed as part of the browsing history algorithm. Typically, history list **120** may be sorted for display utilizing any of the previously described fields within each entry.

[0029] History list **120** in the present invention includes keywords **124**, an arbitrary (with respect to the rules of grammar) listing of terms defining the content referenced by the corresponding entry. As with keywords **122**, keywords **124** may be automatically captured from the meta tags of the link content when the corresponding entry within history list **120** is created. Keywords **124** (and keywords **122**) may be automatically updated whenever the linked site is revisited to reflect changes in the content published at the referenced URL.

[0030] In addition to capture from meta tags or manual user entry/editing, keywords **122** or **124** within a hotlist may be generated from the referenced content itself. The HTML text for the content may be processed to generate a list of terms which appears within the content, which may be filtered based on frequency of occurrence within the content, uniqueness, or any other criteria. The resulting terms may be employed in lieu of, or in addition to, any terms captured from the meta tags of the content or entered by the user within keywords **122** or **124**.

[0031] Although only a bookmarks list and a history list are depicted in **Figures 2A and 2B,** keywords may be employed with any type of hotlist, and the techniques for selecting keywords may be employed regardless of the·type of hotlist in which an entry is created.

[0032] With reference now to **Figure 3,** a mock-up of a user-interface for viewing and/or editing keywords associated with a hotlist entry in accordance with a preferred embodiment of the present invention is depicted. The user interface dialog **300** is generated in response to a user selecting a hotlist entry and actuating an edit or "view properties" function. The hotlist entry being viewed and/or edited in the example shown is a bookmarks list entry. Accordingly, the name **202**, URL **204**, description **210** and keywords **122** are all displayed within the user dialog **300**. All of the display fields for name **202**, URL **204**, description **210** and keywords **122** support editing capability, allowing the user to edit the contents of those display fields.

[0033] Referring now to **Figures 4A** through 4C, high level flow charts for processes of creating and maintaining hotlist entry keyword fields in accordance with a preferred embodiment of the present invention are illustrated. **Figure 4A** illustrates the process of generating a

keyword field for a newly created hotlist entry. The process begins at step **402**, which depicts creation of a hotlist entry for content referenced by an URL. The process first passes to step **404**, which illustrates, after retrieving the linked content, if necessary, a determination of whether the linked content contains a keyword meta tag.

[0034] While existing keyword meta tags may be employed, a novel HTML meta tag such as:

<meta name="HOTLISTKEYWORDS" value="". ..content="'">

may alternatively be employed. Such a meta tag would contain keywords specifically intended by the content publisher to be automatically extracted by a browser or similar HTML facility and included within a hotlist data structure to facilitate location of the desired link by the user at a later time.

[0035] If the linked content contains keyword meta tags, the process proceeds to step **406**, which depicts extracting the keyword terms from the content meta tags. From step **406**, or from step **404** if the linked content does not contain keyword meta tags, the process may optionally proceed to step **408**, which illustrates scanning the linked content for unique or frequently recurring terms. A dictionary of "common" terms may be employed for this purpose, along with recurrence threshold(s). The content scanned may include meta data or only displayed contented, but should preferably include all content data so that images, sound files and motion picture files may also be indexed within the keywords by their name or description.

[0036] If step 408 is implemented, the process may then optionally pass to step 410, which depicts filtering and/or augmenting the meta tag keywords from the keyword meta tags (if any) utilizing the content keywords identified by scanning the content. In this manner, intentionally misleading or misdescriptive keywords included within the keyword meta tags by the publisher may be eliminated if the terms do not also appear within content itself. Alternatively, keywords for linked content may be synthesized from the content where no keyword meta tags are included within the published content, and meta tag keyword terms may be supplemented by content-derived terms.

[0037] The process then passes to step 412, which illustrates entering the selected keyword terms (meta tag keyword terms, content-derived keyword terms, or come combination thereof), if any, into the keyword field of the hotlist entry just created. The process then passes to step 414, which illustrates the process becoming idle until another hotlist entry is created.

[0038] **Figure 4B** illustrates a process of automatically updating the keyword field of a hotlist entry. The browser or other HTML facility for which the hotlist is employed may allow the user to selectively designate the hotlist, or particular entries within the hotlist, for automatic updating whenever the content linked by a corresponding entry within the hotlist is revisited. The process begins at step **416**, which illustrates the user revisiting content linked by an entry within the hotlist, the user may access the content through the hotlist entry, in which case triggering of the update process (e.g., as part of retrieval of the content) is straightforward. Alternatively, the user may access the content by manual entry of the URL or from a link within other content. In this latter instance, the URL of the content accessed must be compared to each

AUS920000120US1   -14-

of the URLs within the hotlist entries in order to determine whether the update process should be triggered.

[0039] The process first passes to step **418,** which illustrates a determination of whether the linked content has been modified since the last access of the content by the user. This may be determined from comparison of a "last visited" field within the hotlist entry with an update meta tag within the linked content, such as:

<meta name="LASTUPDATE" value="Tue Apr25 18:43:34 2000"!>

The need for a keyword update for the linked content may be presumed if the content has been updated since it was last accessed by the user. Alternatively, each entry within the hotlist may include a field in which the last update for the linked content, as last accessed by the user, is maintained.

[0040] If the content has been updated since the user's last visit, or the need for a keyword update for the hotlist entry is otherwise determined to exist, the process proceeds to step **420,** which depicts updating the keywords for the hotlist entry. Any or all of steps 404 through 412 from **Figure 4A** may be employed for this purpose. It should be noted that the keyword field within a hotlist entry may optionally be segregated into "fixed" keywords for the content, selected by the user and not updated with each visit, and "dynamic" keywords which are updated (and deleted or overwritten, if necessary) whenever the linked content is found to have changed. From step **420,** or from step **418** if the linked content is unchanged since last accessed by the user, the process proceeds to step **422,** which illustrates the process becoming idle until another site linked by a hotlist entry is accessed by the user.

AUS920000120US1   -15-

[0041] **Figure 4C** illustrates the process of updating keyword data based on manual editing by the user. The process begins at step **424**, which depicts the properties of a hotlist entry being edited by the user. The process first passes to step **426**, which illustrates displaying the current keyword terms from the selected hotlist entry to the user, and then to step **428**, which depicts receiving user specified keyword terms (e.g., an edited list from the display) for the entry. The process then passes to step **430**, which illustrates entering the received keyword terms within the keyword field of the hotlist entry being edited, and then to step **432**, which illustrates the process becoming idle until another hotlist entry is edited by the user.

[0042] With reference now to **Figure 5**, a mock-up of a user interface dialog enabling search of hotlist entries utilizing content-identifying keywords in accordance with a preferred embodiment of the present invention is depicted. Dialog 50[[0]]2 allows the user to search the keyword substructures of a hotlist for selected search terms. Dialog 50[[0]]2 allows the user to enter one or more search term(s) within the primary keyword query term blanks input-boxes **504**, and to select logical operators using a logical operator blank **506** for logical linking of terms submitted in the keyword query. Any number of keyword term blanks input-box **504** and logical operator blanks input-boxes **506** may be provided to the user, and the number of provided keyword term blanks input-boxes **504** and logical operator blanks input-boxes **506** may be expanded when those provided are all utilized.

[0043] Upon actuation of the "Search" user control, a search engine (not shown) then searches the keyword data stored in the keyword section of the hotlist data structure. The user

will typically be able to include, in addition to the search term or search terms, a series of logical operators that specify how the terms can be combined, for instance, the user will typically be able to combine search terms with a 'logical and' operator when more than one term needs to be present to indicate a valid search result. The user will typically also be able to combine search terms with a 'logical or' operator when one term out of several possible search terms needs to be present to indicate a valid search result. The user will typically also be able to combine search terms with a 'logical except' operator when the presence of some search terms must accompany the absence of other terms in order to indicate a valid search result. Other logical search terms may be available and will fall within the scope of the present invention.

[0044] Referring to **Figure 6**, a high-level flowchart for a process of searching, retrieving, and displaying hotlist entries based on keyword data within the hotlist entries in accordance with the preferred embodiment of the present invention is illustrated. The process begins at step **602**, which depicts receipt of a hotlist entry search request. The process first passes to step **604**, which illustrates displaying the search dialog to the user and receiving the search term(s) and logical operators (if any) from the user through the dialog.

[0045] The process passes next to step **606**, which depicts identifying matching hotlist entries by comparing the logical search criteria to keyword terms associated with each hotlist entry and determining which hotlist entries, if any, satisfy the search criteria. The hotlist entries which are identified as satisfying the search criteria are then sorted and displayed. The process next passes to step **608**, which illustrates a determination of whether a displayed hotlist entry (which satisfies the specified search criteria) has been selected by the user. If so, the process

AUS920000120US1   -17-

proceeds to step **610,** which depicts closing (or minimizing) the display and accessing the requested content utilizing the URL within the hotlist entry selected by the user.

[0046] If the user does not select a displayed hotlist entry, the process proceeds instead to step **612,** which illustrates a determination of whether a request to close the display has been received (for example, by the user actuating a display control). If not, the process returns to step **608** to continue polling for selection of a displayed hotlist by the user. If so, however, the process proceeds instead to step **614,** which depicts closing the display of hotlist entries which satisfy the search criteria, and then to step **616,** which illustrates the process becoming idle until another hotlist entry keyword search is received.

[0047] The present invention provides an improved system of storage and retrieval for bookmarks in computerized information systems and grants the ability to locate relevant bookmarks based on the content or implications of the file represented by the bookmark. Still more particularly, the present invention displays of bookmarks related to a particular search term by use of a keyword data structure and a search and retrieval engine. It also provides a particularly distinctive facility for automatically extracting keyword data from the content of the web page and placing it in the bookmark file for later search.

[0048] It is important to note that while the present invention has been described in the context of a fully functional data processing system and/or network, those skilled in the art will appreciate that the mechanism of the present invention is capable of being distributed in the form of a computer usable medium of instructions in a variety of forms, and that the present invention

AUS920000120US1   -18-

applies equally regardless of the particular type of signal bearing medium used to actually carry out the distribution. Examples of computer usable mediums include: nonvolatile, hard-coded type mediums such as read only memories (ROMs) or erasable, electrically programmable read only memories (EEPROMs), recordable type mediums such as floppy disks, hard disk drives and CD-ROMs, and transmission type mediums such as digital and analog communication links.

[0049] While the invention has been particularly shown and described with reference to a preferred embodiment, it will be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope of the invention.

AUS920000120US1   -19-

CLAIMS:

What is claimed is:

1. A method of improving the search for and retrieval of pages from a hotlist of pages, comprising:

creating an entry representing a page in a hotlist of pages;

searching the page for keywords; and

responsive to discovering at least one keyword within the page, incorporating the at least one keyword into a keyword field of the entry in the hotlist of pages.

2. The method of claim 1, further comprising:

searching for at least one selected search term in keyword fields of all entries in the hotlist of pages;

displaying to the user each entry in the hotlist of pages containing the selected search term within a keyword field for the respective entry; and

responsive to an input from the user selecting a displayed entry, retrieving a page associated with the selected displayed entry in the hotlist of pages.

3. The method of claim 1, wherein the step of searching the page for keywords further comprises:

generating a set of keywords based on the content of the page if no keywords are included within metadata for the page.

4. The method of claim 1, wherein the step of incorporating the at least one keyword into a keyword field of the entry in the hotlist of pages further comprises:

    allowing the user to edit the keyword field of the entry in the hotlist of pages.

5. The method of claim 1, wherein the step of incorporating the at least one keyword into a keyword field of the entry in the hotlist of pages further comprises:

    allowing the user to selectively enable automatic updates of the keyword field of an entry in the hotlist of pages whenever the page represented by the entry is accessed.

6. A method of retrieval of items from a hotlist of pages, comprising:

    searching for at least one selected search term in keyword fields of entries within the hotlist of pages;

    displaying to a user each entry in the hotlist of pages containing the at least one selected search term within the keyword field for the respective entry; and

    responsive to an input from the user selecting a displayed entry in the hotlist of pages, retrieving a page associated with the selected displayed entry in the hotlist of pages.

7. The method of claim 6, further comprising:

    creating a new entry representing a page in the hotlist of pages;

    searching the page for keywords; and

    responsive to discovering at least one keyword within the page, incorporating the at least one keyword into the keyword field of the entry in the hotlist of pages.

8. The method of claim 6, wherein the step of searching the page for keywords further comprises:

· searching for a combination of multiple selected search terms selectively combined according to at least one member of a set of logical operators that includes a 'logical and' operator, a 'logical or' operator, and a 'logical not' operator.

9. A system for improving the search for and retrieval of pages from a hotlist of pages, comprising:

means for creating an entry representing a page in a hotlist of pages; means for searching the page for keywords; and

means, responsive to discovering at least one keyword within the page, for incorporating the at least one keyword into a keyword field of the entry in the hotlist of pages.

10. The system of claim 9, further comprising:

means for searching for at least one selected search term in keyword fields of all entries in the hotlist of pages;

means for displaying to the user each entry in the hotlist of pages containing the selected search term within a keyword field for the respective entry; and

means, responsive to an input from the user selecting a displayed entry, for retrieving a page associated with the selected displayed entry in the hotlist of pages.

11. The system of claim 9, wherein the means for searching the page for keywords further comprises:

AUS920000120US1   -22-

means for generating a set of keywords based on the content of the page if no keywords are included within metadata for the page.

12. The system of claim 9, wherein the means for incorporating the at least one keyword into a keyword field of the entry in the hotlist of pages further comprises:

means for allowing the user to edit the keyword field of the entry in the hotlist of pages.

13. The system of claim 9, wherein the means for incorporating the at least one keyword into a keyword field of the entry in the hotlist of pages further comprises:

means for allowing the user to selectively enable automatic updates of the keyword field of an entry in the hotlist of pages whenever the page represented by the entry is accessed.

14. A system for retrieval of pages indexed by a hotlist of pages, comprising:

means for searching for at least one selected search term in keyword fields of entries within the hotlist of pages;

means for displaying to a user each entry in the hotlist of pages containing the at least one selected search term within the keyword field for the respective entry; and

means, responsive to an input from the user selecting a displayed entry in the hotlist of pages, for retrieving a page associated with the selected displayed entry in the hotlist of pages.

15. The system of claim 14, further comprising:

means for creating a new entry representing a page in the hotlist of pages;

means for searching the page for keywords; and

AUS920000120US1   -23-

means, responsive to discovering at least one keyword within the page, for incorporating the at least one keyword into the keyword field of the entry in the hotlist of pages.

16. The system of claim 14, wherein the means for searching for at least one selected search term in keyword fields of entries within the hotlist of pages further comprises:

means for searching for a combination of multiple selected search terms selectively combined according to at least one member of a set of logical operators that includes a 'logical and' operator, a 'logical or' operator, and a 'logical not' operator.

17. A computer program product within a computer usable medium for improving the search for and retrieval of pages from a hotlist of pages, comprising:

instructions for creating an entry representing a page in a hotlist of pages; instructions for searching the page for keywords; and

instructions, responsive to discovering at least one keyword within the page, for incorporating the at least one keyword into a keyword field of the entry in the hotlist of pages.

18. The computer program product of claim 17, further comprising:

instructions for searching for at least one selected search term in keyword fields of all entries in the hotlist of pages;

instructions for displaying to the user each entry in the hotlist of pages containing the selected search term within a keyword field for the respective entry; and

instructions, responsive to an input from the user selecting a displayed entry, for retrieving a page associated with the selected displayed entry in the hotlist of pages.

19. The computer program product of claim 17, wherein the instructions for searching the page for keywords further comprises:

instructions for generating a set of keywords based on the content of the page if no keywords are included within metadata for the page.

20.   The computer program product of claim 17, wherein the instructions for incorporating the at least one keyword into a keyword field of the entry in the hotlist of pages further comprises:

instructions for allowing the user to edit the keyword field of the entry in the hotlist of pages.

21.   The computer program product of claim 17, wherein the instructions for incorporating the at least one keyword into a keyword field of the entry in the hotlist of pages further comprises:

instructions for allowing the user to selectively enable automatic updates of the keyword field of an entry in the hotlist of pages whenever the page represented by the entry is accessed.

22. A computer program product within a computer usable medium for retrieval of pages indexed by a hotlist of pages, comprising:

instructions for searching for at least one selected search term in keyword fields of entries within the hotlist of pages;

instructions for displaying to a user each entry in the hotlist of pages containing the at least one selected search term within the keyword field for the respective entry; and

instructions, responsive to an input from the user selecting a displayed entry in the hotlist of pages, for retrieving a page associated with the selected displayed entry in the hotlist of pages.

23. The computer program product of claim 22, further comprising:

instructions for creating a new entry representing a page in the hotlist of pages;

instructions for searching the page for keywords; and

instructions, responsive to discovering at least one keyword within the page, for incorporating the at least one keyword into the keyword field of the entry in the hotlist of pages.

24. The computer program product of claim 22, wherein the instructions for searching for at least one selected search term in keyword fields of entries within the hotlist of pages further comprise:

instructions for searching for a combination of multiple selected search terms selectively combined according to at least one member of a set of logical operators that includes a 'logical and' operator, a 'logical or' operator, and a 'logical not' operator.

AUS920000120US1   -26-

METHOD AND APPARATUS FOR IMPROVED BOOKMARK AND HISTORIES ENTRY CREATION AND ACCESS

ABSTRACT OF THE DISCLOSURE

Each entry within a "hotlist" (bookmark, favorites, or history list) includes a set of keywords topically identifying the content of the linked page. The keywords included within META tags for HTML files of an accessed Web page may be automatically detected and extracted by the browser for the hotlist when the browser creates the entry for that page within the hotlist. Alternatively, the browser may tabulate terms from the page content itself to select keywords identifying the content. In either case, the user may selectively edit the keywords for a hotlist entry to add, modify, or delete keywords. The keywords are stored with the hotlist data and may be searched for a particular topic. Hotlist entries matching the search criteria are displayed to the user and, upon selection of a particular matching entry by the user, employed to automatically generate a request for the corresponding page.